beginning with the discovery by Schaudinn in 1905, showing that *Treponema (Spirochaeta) pallidum* is definitely responsible for the lesions occurring in syphilis, and leading to its isolation, identification, and control.

In addition to this they have considerable claim to biological interest because of their apparently intermediate position between bacteria and protozoa.

Dr. W. Cecil Bozanquet, of the Royal College of Physicians of London, has recently brought together in a small book of two sections the matter of chief biological interest to the student. In Section 1 are discussed such topics as their biological position, morphology, habitat, cultivation, multiplication and development, association with other organisms, pathogenic qualities, methods of staining and examination. In Section 2 is given a systematic description of the known species, together with illustrations.

In his summary of the phenomena of pathogenicity of the Spirochetes the author classes them in three classes with ascending degrees of virulence: (1) those of slight virulence producing a local affection or lesion only; (2) those in which there is a well marked local lesion, followed by a generalized infection, with relapses not a marked feature; and (3) those of most intense virulence producing immediate generalized septicæmia, accompanied by fever, tendency to relapses, and enlargement of the spleen. In the second group would come those associated with yaws and syphilis; and under the third, those causing the relapsing fevers, fowl-spirillosis, etc.

The author's work was evidently done before the isolation of *Treponema pallida* and recent demonstration of the causal connection between it and syphilis.

Spirochaetes. W. Cecil Bosanquet, M. D., octavo of 152 pages, illustrated. Philadelphia and London. W. B. Saunders Co., 1911. Artistically bound, $2.50 net.

PELLAGRA AS AN AMERICAN PROBLEM

Dr. George M. Niles, in a book of 250 pages, undertakes to give a readable account of this apparently modern disease. The effort is a timely one in America, in the light of the great increase in the recorded instances of the malady in the United States.

The following chapter headings will indicate the order and scope of the treatment: General Historic Considerations; Pellagra in the United States; The Etiology of Pellagra; Symptomatology and Clin-

ical Course; Pathology and Morbid Anatomy; Diagnosis, Course, and Prognosis of Pellagra; Treatment of the Disease; Prophylaxis; Description and Discussion of Some Recent Experiments on Animals. There is an index of authors and of topics. The earliest accounts, which may possibly relate to pellagra, are not certain; but it is suspected among the American Indians as early as 1600, and even then was believed to be related to the use of Indian corn. From this time forward, under different names, and in different countries, records appear which seem to indicate pellagra. Not until 1863 do we hear definitely of it among the whites of America. There has been since that time a gradual accumulation of data, and apparently an increase of the disease itself, until at the present time the author believes that there are from 6,000 to 10,000 cases in the United States.

The author quotes liberally from the various students of the etiology of pellagra and presents the various views, which may be classified as follows:

A. Those which hold that it is wholly unconnected with Indian Corn, but caused by some parasite with seasonal periods of activity and latency. (Dr. Sambon.)

B. Those holding Indian Corn responsible for the disease.

I. Through good corn, even.

1. Because it lacks some necessary nutritive property.

2. Because it contains some toxic substance which tends to cause the disease.

II. Through spoiled corn only.

1. Because of toxic substances produced by the spoiling of corn or by the action of organisms in it. (Lombroso.)

2. Because of the direct conveyance to the human system of organisms that in turn produce directly or indirectly the disease.

The author believes that the malady is related to spoiled corn (toxins produced therein). The prophylaxis must necessarily be uncertain until the etiology is determined but in the meantime it is certainly a part of the duty of governments to see that meal made of moldy corn is not distributed to consumers.

There is no evidence that it is or has been seriously considered to be contagious. The principal suggestions cluster about inspection of corn and corn products and the prohibition of commerce or use of spoiled corn.

Pellagra. By George M. Niles, M. D., Atlanta School of Medicine, 252 pages, illustrated. Philadelphia and London; W. B. Saunders Co., 1912. Cloth, $3.00 net.

INJURIOUS INSECTS

Dean E. W. Sanderson has given us a most beautifully illustrated account of the principal insect pests. The illustrations are drawn from the most varied and authoritative sources. The text is in most places clear and direct, and the book is eminently readable. On examining it one is at once impressed with the marvelous value of co-operation in scientific work. Here are gathered from all quarters the results of the most laborious and painstaking work of hundreds of scientific men all over the country. It seems like the work of one man, and is ready for the common man to utilize.

There are twenty-eight chapters. The book begins with a general chapter on "Injury to Crops by Insect Pests," in which it is estimated that the annual damage done by insects in the United States is as much as $1,000,000,000. An analysis is made of this total as it affects the various types of crops. A chapter follows on "Beneficial Insects," in which the work of predaceous forms, such as the lady-bird beetle, and of parasitic types, is described. There are three chapters on control of insect pests, insecticides, spraying and the like.

The body of the book consists of a discussion of the insects injuring the special crops: as small grains; corn; stored grains; clover; tobacco; cotton; hop plant; potatoes and tomatoes; beans and peas; beets and spinach; cabbage and cruciferous plants; melons and squash, etc.; sweet potatoes; strawberry; raspberry and blackberry; currant and gooseberry; grape; orchard fruits (3 chapters).

It is difficult to see how this matter could be put into form more available for the general reader and student. It furnishes an excellent starting point for the amateur student with the microscope, as well.

Insect Pests of Farm, Garden and Orchard. E. Dwight Sanderson, Dean of College of Agriculture, W. Va. Univ.; 684 pages, 513 illustrations. New York; John Wiley and Sons, 1912. Price, $300 (12/6) net.